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BEFORE THE WISCONSIN PUBLIC SERVICE COMMISSION

Comments of Slipstream Group on the Commission's Roadmap to Zero Carbon Investigation: Docket 5-EI-158

May 14, 2021

Slipstream appreciates the opportunity to provide comments on Docket 5-EI-158: Roadmap to Zero Carbon Investigation.

INTRODUCTION. Slipstream is a 501(c)(3) organization that promotes efficient and environmentally responsible energy use with the goal of speeding the transition to a decarbonized and affordable energy future for all. The Commission's March 11, 2021 Notice of Investigation highlights a wide range of important considerations for Wisconsin's on-going transition to zero-carbon electricity generation. And, pursuant to the Commission's request for comments on April 2, 2021, this public process has great potential for prioritizing decarbonization options that will achieve economic and environmental benefits, reliability, and affordability for all Wisconsinites.

In accordance with the Commission's request to limit comments to three issue areas, Slipstream recommends the following be prioritized in the Commission's investigation:

1. Applying key tenets of clean energy planning
2. Beneficial electrification
3. Renewable energy enabling transmission.

PRIORITY AREA #1: KEY TENETS OF CLEAN ENERGY PLANNING

Wisconsin's Clean Energy Plan, in progress pursuant to Executive Order #38, is expected to include recommendations regarding a range of clean energy options for Wisconsin. Underlying the specific recommendations are multiple explicit and implicit tenets for clean energy planning. The Commission should center and apply these tenets in its investigation and future action, and rigorously and transparently monitor, track, and report on how they are upheld:

1. Clean energy planning must be based in climate science. Emission reduction goals and adopting cleaner energy resources will drive overall emission reduction, but that is not necessarily sufficient (or fast enough) reduction. Policy, program, planning, and timing decisions must all apply climate science to ensure that emission reduction strategies result in containment of global warming to 1.5 degrees Celsius. This is a pledge of Executive Order #38.

2. Environmental justice, equity, and inclusion are essential for clean energy planning, implementing clean energy plans, and the governance surrounding both.
3. Achieving the full potential of cost-effective energy efficiency is a must-have for decarbonizing. Wisconsin has a strong history of achieving energy efficiency goals cost effectively and should aggressively pursue the true and full potential of energy efficiency as a resource.
4. Energy efficiency programs should have CO_2 reduction goals. Energy efficiency programs have traditionally been measured mostly by kWh and therm savings, and this approach disregards the source of energy. A new and more holistic view of system efficiency is warranted. Electrifying end uses to realize the benefits of zero-carbon electricity will result in greater electricity consumption, and programs should be modernized to optimize and marry the benefits of efficiency and decarbonization.

PRIORITY AREA #2: BENEFICIAL ELECTRIFICATION

Beneficial electrification is the practice of electrifying energy end uses otherwise powered by fossil fuels to achieve a range of benefits. Electrification is often considered beneficial specifically when it:

1. Reduces greenhouse gases
2. Saves consumers money
3. Enhances grid operation
4. Drives energy access and equity

Significant emission reduction is possible when end uses are electrified, there is highly efficient end us of energy, and electricity is decarbonized.

Key end uses to electrify include transportation and space heating, water heating, and cooking. Transportation and space heating are particularly important end uses for electrification because light duty vehicles are the largest and residential space heating is the third largest source of greenhouse gas emissions. While light duty electric vehicle adoption is currently low in Wisconsin at less than 1% of market share, growth is expected to be rapid with many market analysts forecasting that more than half of all vehicles sales will be electric by 2040 or sooner. Converting internal combustion transportation to electricity will reduce emissions significantly. In addition, EVs are a flexible load that can be managed to support grid optimization and renewable integration to reduce electricity costs for all consumers.

In buildings, electrification of space heating is made possible with the advancement of heat pump technology and performance in cold climates. While Wisconsin home heating is currently 65% natural gas and only 11% electricity, heat pump technology is advancing, awareness of the technology's benefits is rising, and market forecasts show

heat pump sales will grow approximately 8% annually. Additionally, efficient, electric water heating technology is increasingly recognized in the energy sector for its ability to serve as a behind-the-meter thermal battery; therefore, electrification combined with its demand flexibility can make water heating an important piece of beneficial electrification in buildings.

To address beneficial electrification, the Commission should open a separate beneficial electrification investigation to understand Wisconsin's electrification potential and timeline, which models and quantifies the energy, cost, environmental, and grid impacts of electrifying transportation and buildings. Models should account for energy efficiency of new technology, rigorous assessment of and forecasts for adoption rates, and the amount and value of demand flexibility. This electrification potential study should be used to inform the program design and funding for beneficial electrification interventions in programs overseen by the Commission, such as Focus on Energy, and grant programs and potential federal stimulus funding that may be administered by the Office of Energy Innovation. Because the benefits of electrification will be amplified by integrating approaches (e.g., energy efficiency, responsive demand management, and rate design) the Commission should evaluate what the barriers are to integration and how they can be overcome. For example, should Focus on Energy actively promote and incentivize beneficial electrification, and if so, what must change? Will current metering norms serve in the future when there is more responsive demand programming and rate design variety for specific pieces of equipment (e.g. heat pump, EV)? If not, what must change?

PRIORITY AREA #3: RENEWABLE ENABLING TRANSMISSION

MISO is currently planning the regional transmission grid needed to accommodate a rapidly changing generation portfolio. Wisconsin's five largest utilities set goals to achieve zero carbon emissions by 2050, some including interim goals by 2030. Achieving these no-carbon generation goals in 30 years' time is necessary and will be transformational.

MISO is developing the lines needed for the next 20 years in consideration of Wisconsin utilities' carbon goals and future generation plans, if provided by the utilities. MISO seeks a cost-effective way to ensure that utilities with carbon goals can reliably deliver zero carbon electricity to customers. Some renewable generation can and should be sited locally, and to take advantage of the highest capacity factors, other renewable generation will be sited outside Wisconsin. Regional transmission helps achieve carbon reduction, resiliency, and cost reduction as generation transforms.

The Commission's investigation should prioritize answering how Wisconsin utilities can meet their carbon reduction goals while minimizing customer costs and ensuring resiliency. While interstate transfer capacity is lacking currently, what is the future optimal mix of in-state renewables, energy storage, other distributed energy resources, and out-of-state resources in the short, medium, and long term?

The Commission plays a critically important role in the investigation relative to reducing customer costs particularly since there may not be alignment between investor-owned utilities' and ratepayers' interests related to infrastructure development. Generation-owning utilities have financial incentive to block import of lower-cost power to protect revenue from inefficient generators. IOUs may also be financially incentivized to block interstate transmission development and, in turn, propose locally sited resources even if not cost effective. A robust grid and energy market with access to lower-cost generators are essential and offer solution to this interest misalignment, and more interstate transfer capacity increases and diversifies access to lower-cost generation.

When generators in one geographic location are disrupted by the same event, it is critical to have access to generators located outside the impacted area. For example, had Texas utilities been more interconnected through transmission during the February 2021 event, they would have been able to access operable generators.

A primary purpose of RTO participation is access to many generators. Wisconsin can only capture that benefit with sufficient transmission connections to those generators. Currently, Wisconsin only interconnects to the west and the south, which limits access to generators and diminishes resilience. Wisconsin's interstate transfer capacity is exhausted, and more interstate connections are needed.

Locating renewable generators in various weather systems maximizes utilization of renewables. As weather systems move through MISO service territory, utilities must be able to access productive generators (where the sun is shining and the wind is blowing) through transmission connections. MISO has demonstrated that accessing renewables in diverse locations also increases the output of those generators.

To address the renewable-enabling transmission in its investigation, the Commission should:

1. Formally request that MISO conduct a study to determine the optimal combination of local renewables and out-of-state renewables (both with their attendant transmission costs) that would maximize cost savings, carbon reductions, and resilience for Wisconsin customers.
2. Ensure that Wisconsin utilities decarbonize. It is unclear whether the five largest Wisconsin utilities will achieve specified carbon targets or if their holding companies are making the carbon reduction pledges. If these are pledges of holding companies who will manage carbon emissions for their subsidiaries, it is possible that Wisconsin utilities will not actually decarbonize to the extent their targets suggest. For example, a holding company could site renewable generators outside Wisconsin, sell that electricity, but sustain emissions in Wisconsin and characterize the result as net zero carbon.
3. Determine policy and protocol for utility disclosure related to utility plans to meet carbon emission reduction targets. Since Wisconsin does not currently have an integrated resource plan requirement there is no Commission, MISO, or public

visibility to utility plans for meeting carbon reduction goals. What authority does the Commission have to require utilities to annually submit 20-year plans for reducing carbon, cost-effectively meeting load requirements, planning reserve margins, and achieving other goals?

In summary, Slipstream recommends that in carrying forward the Roadmap to Zero Carbon Investigation, and taking future action, the Commission prioritize the issue areas summarized in this submission. The key tenets of clean energy planning, beneficial electrification strategies, and transmission investment and deployment (that will enable renewable energy sufficient to meet Wisconsin's zero-carbon electricity goal and the state's CO_2e budget consistent with climate change science set forth by the IPCC) are top priorities on the pathway to achieving economic and environmental benefits, reliability, and affordability for all Wisconsinites.

Sincerely,

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